

IN THE CLAIMS:

Claim 1 (previously presented): A hot-air circulation furnace comprising:

a furnace body having a heat source and a rotating hearth;

an annular heating-target mount having a heating-target mount shelf, which is provided at a position on the rotating hearth closer to an outer periphery of the rotating hearth along a peripheral wall of the furnace body, on which a heating-target is mounted so that the heating-target can be carried in or carried out in a radial direction, and through which a circulating flow of hot gas can pass along a vertical direction;

an annular partition, which separates an interior of the furnace into an outer peripheral region in which the heating-target mount is installed and an inner region inside the outer peripheral region, and which forms upper and lower paths in which the inner peripheral region and the outer region are communicated in a vicinity of the rotating hearth of the furnace body and in a vicinity of the roof of the furnace body;

an axial-flow fan, which is provided in a vicinity of a roof of the furnace body, and which draws in the hot gas heated by the heat source in a direction from its outer periphery toward its central portion and blows out the hot gas toward the rotating hearth through the inner region formed as a space inside the annular partition; and

the hot gas, blown out from the axial-flow fan in the inner region, passes through the path in the vicinity of the rotating hearth in the annular partition along the annular partition, flowed out radially in the outer peripheral region outside the annular partition, passes through the heating-target mount shelves of the heating-target mount and moves upward, again heated by the heat sources, drawn into the axial-flow fan, and forming the circulating flow.

Claim 2 (original): The hot-air circulation furnace according to claim 1, wherein a plurality of zones are formed in the furnace body, and a heat source which is independently controllable is provided in correspondence with each zone.

Claim 3 (original): The hot-air circulation furnace according to claim 2, wherein a flow straightening member having a surface parallel to the flowing direction of the circulating flow is provided in a portion of the path for the circulating flow.

Claim 4 (original): The hot-air circulation furnace according to claim 3, wherein the flow straightening member is placed on one of the drawing-in side and the blowing-out side of the axial-flow fan.

Claim 5 (original): The hot-air circulation furnace according to claim 3, wherein the flow straightening member is a partition provided in the inner region inside the annular partition.

Claim 6 (currently amended): The hot-air circulation furnace according to claim 1, including a further partition in the inner region so that ~~wherein~~ the inner region is formed as a space inside the annular partition for supplying the hot gas blown out from the axial-flow fan to the heating-target mount while increasing a velocity of part of the hot gas by reducing [[the]] an opening of the space in the inner region at [[the]] an outlet side relative to the opening of the space at [[the]] an inlet side of the inner region.

Claim 7 (original): The hot-air circulation furnace according to claim 1, wherein the heating-target mount has the heating-target mount shelves in a plurality of stages.

Claim 8 (original): The hot-air circulation furnace according to claim 7, wherein the heating-target mount is separated along a circumferential direction by partitions for defining along the circumferential direction in correspondence with spaces in each of which the heating-target is mounted to be processed at a time, and is provided to communicate together in a vertical direction through the heating-target mount shelves.

Claim 9 (original): The hot-air circulation furnace according to claim 7, wherein the furnace further comprises a charging opening and an extraction opening in the peripheral wall of the furnace body for enabling the heating-target to be charged and extracted with respect to the heating-target mount shelf in each stage on the heating-target mount.

Claim 10 (original): The hot-air circulation furnace according to claim 9, wherein the charging opening and the extraction opening are independently opened and closed, and a space between the charging opening and the extraction opening is set so as to have at least one accommodation space for the heating-target of the heating-target mount.